

ABSTRACT OF THE DISCLOSURE

Novel compositions are disclosed for use as a stationary phase in chromatography comprising an inorganic substrate that is modified with at least one silane having the formula $R^1_\delta-Q_\alpha-(CH_2)_\beta-SiR^2_\gamma X_{3-\gamma}$. In a preferred embodiment, the inorganic substrate is silica gel and is
5 modified with at least two silanes. Methods of preparation and use in chromatographic applications are disclosed. The novel compositions provide superior chromatographic performance, reduced silanol activity, enhanced stability, and reproducibility in preparation and performance.